

AMENDMENTS TO THE CLAIMS:

1. (Currently amended) A band gap circuit for generating an output voltage to ~~output it~~ be outputted from a circuit output terminal, which is connected to a power supply voltage source and a reference potential point, said band gap circuit comprising:

a differential amplifier having an inverting input terminal, a noninverting input terminal, and an output terminal;

a first circuit for causing a potential difference to occur at said inverting input terminal and said noninverting input terminal ~~responding in response~~ to fluctuation of the voltage ~~of on~~ said circuit output terminal; and

a switching element for causing ~~an~~ excess current ~~of from~~ said circuit output terminal to flow ~~in to~~ said reference potential ~~responding point in response~~ to fluctuation of the potential at said output terminal of said differential amplifier, said switching element being connected to said circuit output terminal and said reference potential point and being directly connected to said output terminal of said differential amplifier.

2. (Currently amended) The band gap circuit according to claim 1, ~~said band gap circuit characterized in that further comprising~~ a first element having a resistive component and a second element having a capacitive component, ~~are said first and second elements being connected, and that said first element and said second element connected to remove power supply noise of said in the power supply voltage.~~

3. (Currently amended) The band gap circuit according to claim 2, ~~said band gap circuit~~

characterized in that wherein said first element is comprises a transistor.

4. (Currently amended) The band gap circuit according to claim 2, said band gap circuit characterized in that wherein said second element is comprises an ion implantation resistor.

5. (Currently amended) A band gap circuit for generating an output voltage to output it be outputted from a circuit output terminal, which is connected to a power supply voltage source and a reference potential point, said band gap circuit comprising:

a differential amplifier having an inverting input terminal, a noninverting input terminal, and an output terminal;

a first circuit for causing a potential difference to occur at said inverting input terminal and said noninverting input terminal responding in response to fluctuation of the voltage of on said circuit output terminal; and

a switching element for causing an excess current of from said circuit output terminal to flow in to said reference potential responding point in response to fluctuation of the potential at said output terminal of said differential amplifier, said switching element being connected to said circuit output terminal, said reference potential point, and said output terminal of said differential amplifier,

a first element having a resistive component, said first element being connected to said power supply voltage and said circuit output terminal; and

a second element having a capacitive component, said second element being connected to the above said first element.

6. (Currently amended) The band gap circuit according to claim 5, ~~said band gap circuit characterized in that wherein said first element is comprises~~ a transistor.

7. (Currently amended) The band gap circuit according to claim 5, ~~said band gap circuit characterized in that wherein said second element is comprises~~ an ion implantation resistor.

8. (New) The band gap circuit according to claim 1, wherein said switching element comprises a N-channel MOS transistor.

9. (New) The band gap circuit according to claim 5, wherein said switching element comprises a N-channel MOS transistor.

10. (New) A band gap circuit, comprising:
a voltage supply circuit adapted to be connected to a power supply voltage source;
a reference potential point;
a circuit output terminal connected to said voltage supply circuit;
a differential amplifier connected to said voltage supply circuit and having an inverting input terminal, a noninverting input terminal, and an output terminal;
a first circuit for causing a potential difference to occur at said inverting input terminal and said noninverting input terminal in response to fluctuation of the voltage on said circuit output terminal; and
a switching element for causing excess current from said circuit output terminal to

flow to said reference potential point in response to fluctuation of the potential at said output terminal of said differential amplifier, said switching element being connected to said circuit output terminal, said reference potential point, and said output terminal of said differential amplifier.

11. (New) The band gap circuit according to claim 10, wherein said voltage supply circuit comprises a constant current source, a first transistor coupling said differential amplifier to the power supply voltage source and said constant current source, and a second transistor coupling said circuit output terminal to the power supply voltage source and said constant current source.

12. (New) The band gap circuit according to claim 10, wherein said voltage supply circuit comprises a constant current source, a first pair of cascaded transistors coupling said differential amplifier to the power supply voltage source and said constant current source, and a second pair of cascaded transistors coupling said circuit output terminal to the power supply voltage source and said constant current source.

13. (New) The band gap circuit according to claim 10, further comprising a first element having a resistive component and a second element having a capacitive component, said first and second elements being connected to remove power supply noise in the power supply voltage.

14. (New) The band gap circuit according to claim 13, wherein said first element comprises a transistor.

15. (New) The band gap circuit according to claim 13, wherein said second element comprises an ion implantation resistor.

16. (New) The band gap circuit according to claim 10, wherein said switching element comprises a N-channel MOS transistor.

17. (New) A band gap circuit, comprising:
a voltage supply circuit adapted to be connected to a power supply voltage source;
a reference potential point;
a circuit output terminal connected to said voltage supply circuit;
a differential amplifier connected to said voltage supply circuit and having an inverting input terminal, a noninverting input terminal, and an output terminal;
a first circuit for causing a potential difference to occur at said inverting input terminal and said noninverting input terminal in response to fluctuation of the voltage on said circuit output terminal;
a switching element for causing excess current from said circuit output terminal to flow to said reference potential point in response to fluctuation of the potential at said output terminal of said differential amplifier, said switching element being connected to said circuit output terminal, said reference potential point, and said output terminal of said differential amplifier,

a first element having a resistive component, said first element being connected to said power supply voltage and said circuit output terminal; and

 a second element having a capacitive component, said second element being connected to said first element.

18. (New) The band gap circuit according to claim 17, wherein said voltage supply circuit comprises a constant current source, a first transistor coupling said differential amplifier to the power supply voltage source and said constant current source, and a second transistor coupling said circuit output terminal to the power supply voltage source and said constant current source.

19. (New) The band gap circuit according to claim 17, wherein said voltage supply circuit comprises a constant current source, a first pair of cascaded transistors coupling said differential amplifier to the power supply voltage source and said constant current source, and a second pair of cascaded transistors coupling said circuit output terminal to the power supply voltage source and said constant current source.

20. (New) The band gap circuit according to claim 17, wherein said first element comprises a transistor.

21. (New) The band gap circuit according to claim 17, wherein said second element comprises an ion implantation resistor.

22. (New) The band gap circuit according to claim 17, wherein said switching element comprises a N-channel MOS transistor.